Plant Pathogenic Bacteria
A Basic Guide to Symptoms

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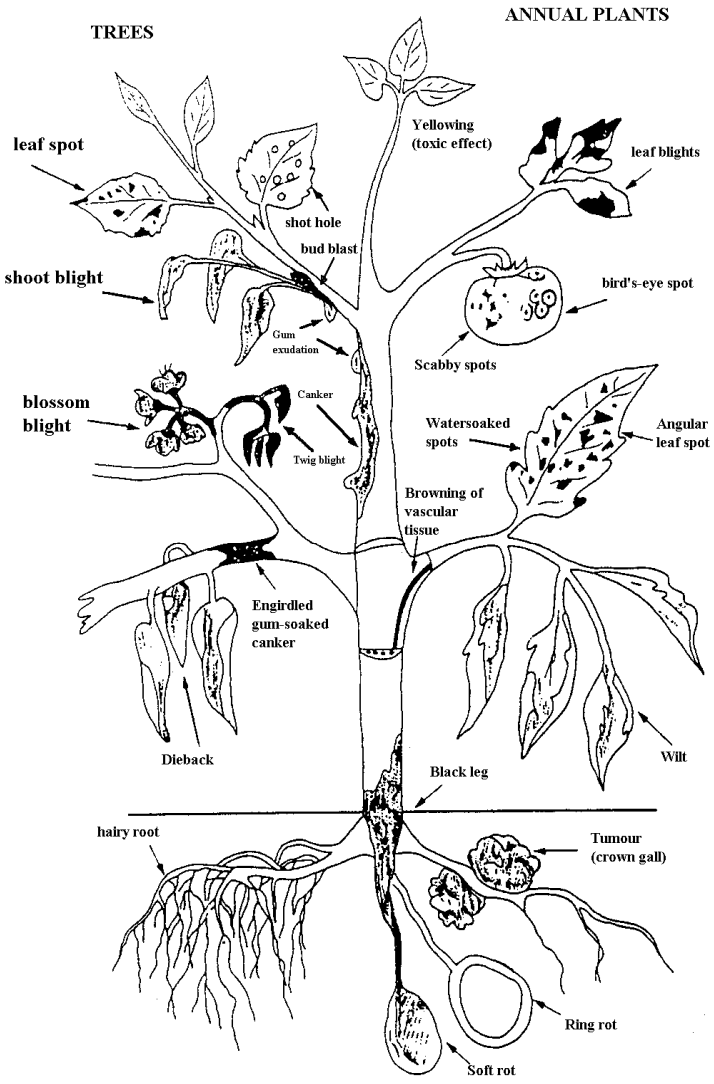
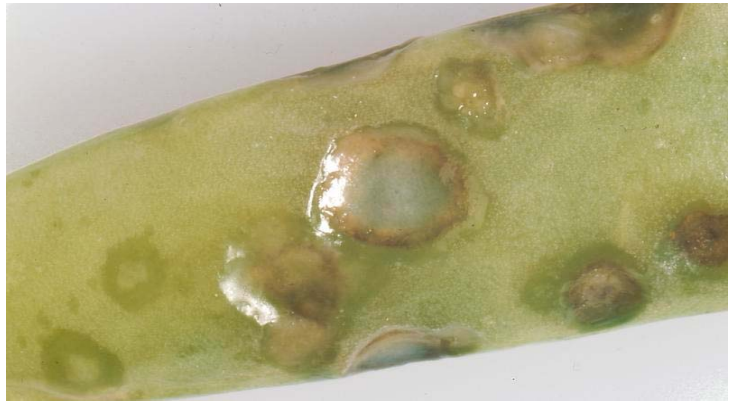
Module 1

Types of symptoms



- Leaf stem and fruit spots and necrosis
- Cell poliferation
- Die back & cankers
- Wilts
- Soft rots

Leaf and pod spots and necrosis



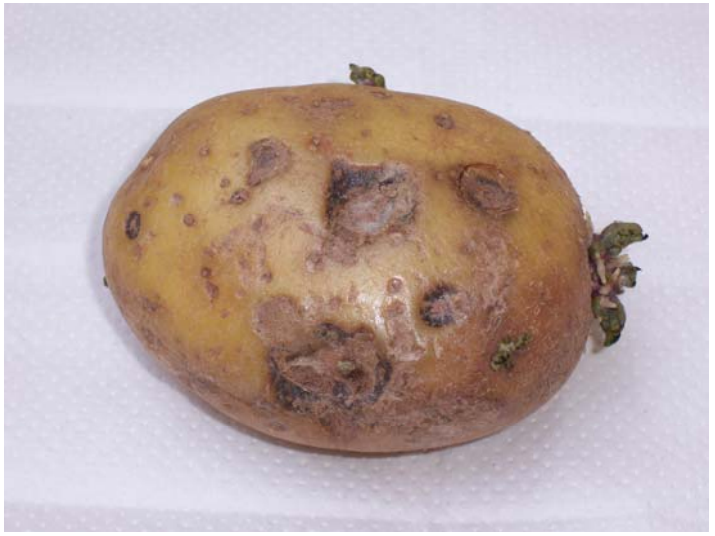
Cell proliferations

Dieback and cankers

Wilt

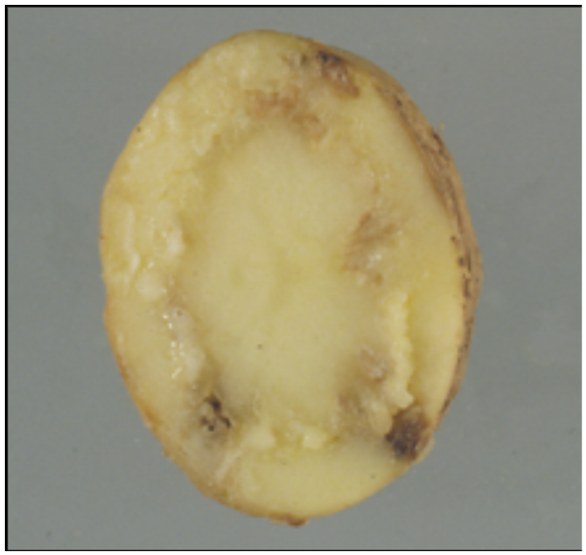
Wilt

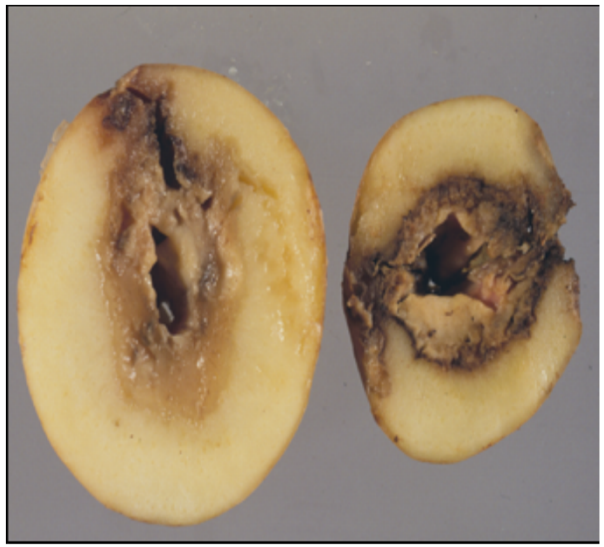
Soft rot



Ralstonia solanacearum

Clavibacter michiganensis subsp. sepedonicus



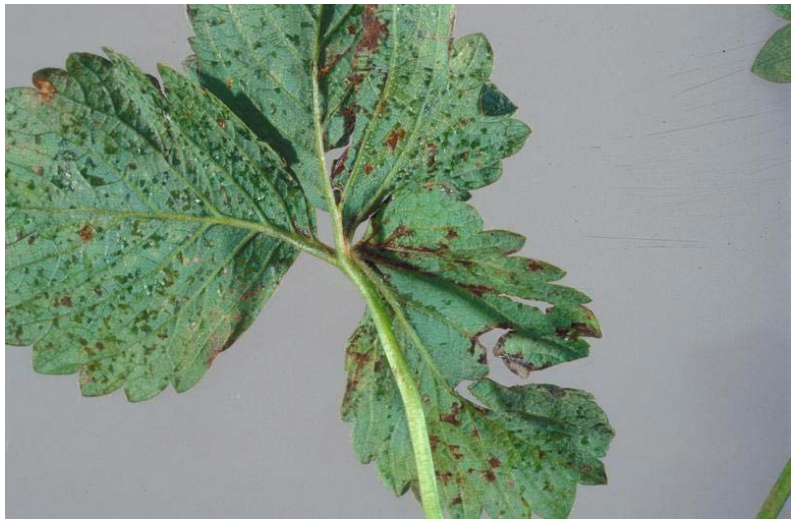


Pectobacterium atroseptica

Dickeya [Erwinia] chrysanthemi

Xanthomonas fragarie

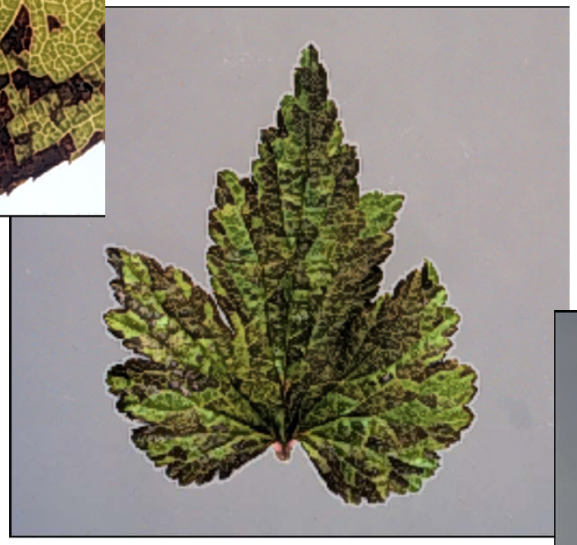
[Angular leaf spot]



Xanthomonas arboricola pv. *fragariae*

[Bacterial leaf blight of strawberry]

Xanthomonas sp. on novel hosts



Xanthomonas cynarae

Pseudomonas syringae pv. *pisi*

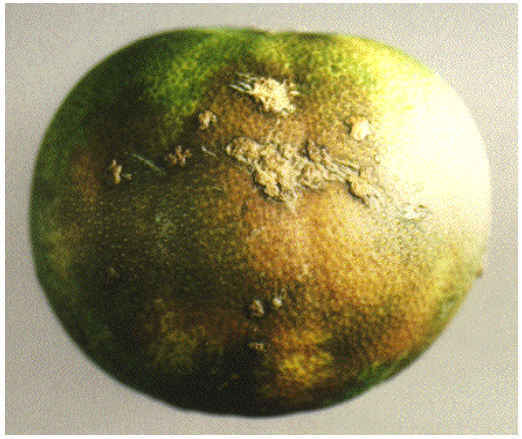
Psedomonas syringae

P. s. aptata on sugar beet

P. syringae pv. *viburni*

Pseudomonas syringae

Xanthomonas axonopodis pv. *citri*



Xanthomonas hortorum pv. *pelargonii*

Burkholderia pv. *alliicola*

Brown rot or *Verticillum* on potato - Bolivia

In Bolivia a ‘green wilt’ and a ‘yellow wilt’ [associated with brown rot and *Verticillium* wilt, respectively] were shown to be caused by both pathogens with almost equal frequency

Water availability [stress factors] strongly influence symptom expression

Field and laboratory diagnosis – quick tests

In Bolivia CSL's Lateral Flow Device for Bacterial Wilt was routinely used to aid field observations [also used for *R. solanacearum* testing of Pelargonium in Kenya]

In instances when you have a strong indication of the causal organism, quick diagnostic tests can be very useful

An increasing number of such kits are becoming available for bacteria and other plant pests

Banana wilt in Uganda: *Xanthomonas* or *Ralstonia*!

Initially *R. solanacearum* was suspected as the causal agent for banana wilt in Uganda.

Analysis showed this to be wrong; *X. campestris* pv *musacearum* was isolated

Different bacterial species can present very similar symptoms

A wilt of chilli in Pakistan: fungal or bacterial

Initial thoughts that *R. solanacearum* was responsible for chilli wilt in Pakistan were proven wrong

A complex of *Fusarium* spp was consistently associated with the disease

The mistaken identity was mainly due to an incorrect interpretation of bacterial isolation plates using selective media – selective media are at best semi-selective and often not recommended for isolation purposes